

Commentary

Caring for Miners During the Coronavirus Disease-2019 (COVID-19) Pandemic

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Miners constitute an underserved, isolated, medically vulnerable, and often underinsured, rural population.¹ In the Southwestern United States (US), most miners are Hispanic or American Indian, and high school dropouts.¹ The recent re-emergence of pneumoconioses² has created a challenge for rural mining communities in the US. Rural residents also experience a higher prevalence of, and deaths from, chronic obstructive pulmonary disease (COPD) than non-rural residents.³ Rural miners similarly are at greater risk for COPD and self-reported dust-related lung disease than non-rural miners.⁴

The World Health Organization declared coronavirus disease-2019 (COVID-19) a pandemic on March 11, 2020. Although urban areas are disproportionately affected, the

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disease has spread to rural areas, where its prevention and treatment may be more challenging because of the lower concentration of medical and public health resources.⁵ Data indicate that men are more susceptible than women, and that smoking affects outcomes adversely.^{4,6} Given that miners, mostly men and often smokers, have a disproportionately high prevalence of hypertension and diabetes (other risk factors for COVID-19^{1,7}), miners may constitute a susceptible population for this disease.

Pulmonary Function Testing

The pandemic has caused various professional organizations to support discontinuing routine pulmonary function test (PFT) studies. The American College of Occupational and Environmental Medicine (ACOEM) explains that “spirometry tests require performance of a forced expiratory maneuver, which could spread droplets in the air if an infected person is tested, even if asymptomatic.”⁸ This creates a risk for the health care professional performing the test as well as for subsequent patients. The American Thoracic Society (ATS) similarly states that the risk of transmitting the virus may be significant, and likely varies based on the community prevalence of infection and patient characteristics.⁹ Similar concerns about transmitting infection are applicable to other studies of lung function. Many test filters are not validated for capturing particles $<1\ \mu$ (or 1000 nm) in size—virus size in COVID-19 varies from 60-140 nm in diameter.¹⁰ This means that filters may provide little or no protection from viral transmission. Lung volumes, diffusing capacity, and cardiopulmonary exercise studies require collection of gases within a closed system. The virus could contaminate the inside chambers, requiring time-consuming decontamination. Consequently, a number of rural test laboratories and clinician offices temporarily stopped testing or started performing only urgent studies. With the unknown risk, ATS and ACOEM recommend health care providers don personal protective equipment such as N95 respirators during urgent testing to limit aerosolized droplet acquisition by staff, and enhanced cleaning of the testing space. Although

PFTs are infrequently required for making acute clinical decisions in miners, they form the foundation for surveillance, diagnosis, preemployment physical assessment, impairment assessment, and research. These activities are likely to be delayed by months due to the pandemic, causing significant disruption in the care of miners.

Screening and Clinical Needs

Fixed and mobile health screening programs for miners have stopped, as institutions shift focus to the surge of acutely ill patients. At our institution, the evaluation of uranium miners for eligibility under the Radiation Exposure Compensation Act (RECA) has been postponed. Given that potential eligibility claims have a deadline of July 10, 2022, the postponement may deny some miners of deserved compensation benefits. Black Lung and Energy Employees Occupational Illness Compensation Program (EEOICP) impairment evaluations have also stopped.

Fewer than half of New Mexico (NM) miners in a study did not have a primary care provider (PCP).¹ Without a PCP to call, many miners will rely on unverified information, and some will go to the hospital, perhaps unnecessarily; others will wait too long to seek care.¹¹ For those with a PCP, the rapid transition to telemedicine, although welcome, will create new difficulties in communication, particularly for miners with limited English proficiency, those who lack access to videoconferencing, and those with concomitant hearing deficits who rely on visual cues.^{11,12}

The EEOICP provides home health services to uranium miners and other energy workers, a service that can help keep rural patients away from overburdened hospitals during the pandemic. Home health staff have been constrained by a lack of protective gear and training on its use, inadequate training on the care of potentially infected patients, physical and mental exhaustion, high staff turnover rates, and fear. Teletraining staff can help address

several constraints. Although not currently covered by the program payer, it is likely that telemonitoring in home care will receive more attention during the pandemic.

Outpatient Pulmonary Rehabilitation

Pulmonary rehabilitation is a recognized treatment for chronic lung diseases in miners. Rural mining communities have limited access to these programs³ and many of those that do have access have encountered program closures due to the pandemic. Potential alternatives, such as rehabilitation at home or telehealth rehabilitation with remote online supervision, should be considered.¹³ Rural local chapters of support groups, such as the American Lung Association Better Breathers Clubs have also shut down. While telehealth can help relieve isolation, support appropriate education, and assist in patient care,¹⁴ lack of Internet access still continues to be a barrier in some rural mining communities.¹⁵

Professional Education and Training

The professional expertise available to care for miners has decreased over time in the pneumoconiosis mortality hotspot regions of Appalachia and the Mountain West.^{1,16} There is a tremendous need to train these rural professionals across the multidisciplinary aspects of the management of complex mining-related diseases. Following the pandemic outbreak, many directors of spirometry courses approved by the National Institute for Occupational Safety and Health (NIOSH) postponed their training programs, based on the concern for transmitting infection.⁸

Structured longitudinal telementoring of rural health care professionals could create a virtual “community of practice” that would facilitate team management of complex mining-related diseases in rural areas.¹⁴ The strategy of “moving knowledge” instead of “moving patients” has been shown to be effective in managing other chronic diseases in medically underserved areas using the Extension for Community Health Outcomes (ECHO) model for telementoring.¹⁷⁻²⁰ Ironically, the New Mexico-based Miners’ Wellness Tele-ECHO program

temporarily stopped in April 2020 to help meet the high demand for tele-education of rural providers on the management of the COVID-19 infected patients. Key professional conferences such as the May 2020 American Thoracic Society International Conference were canceled. Given that the pandemic is expected to last several months, there is tremendous need to utilize systems that are already in place for rapid scaling of the Miners' Wellness TeleECHO Program and NIOSH approval for virtual spirometry training courses.

Research

Laboratory research activities slowed but continued with social distancing measures. On the other hand, clinical research involving miners at our institution was significantly impacted, out of concern for the safety and welfare of human subject participants and research staff. Recruitment for new studies was delayed and existing studies disrupted. Conducting virtual study activities by phone or video conferencing requires additional institutional review board (IRB) approvals. The National Institutes of Health (NIH) noted that research grant recipients were likely to encounter delays to ongoing research.²¹

Legal and Benefits Proceedings

The compensation programs for US miners are complex, requiring specialized input from benefits counselors, attorneys, and judges. Infamous for delayed judgements, many claims in the Black Lung program are awarded to widows, long after the death of the miner. Benefits and legal counseling are complex and difficult during social distancing.²² Most Black Lung clinics have suspended testing and face-to-face benefits counseling until further notice. Some attorneys shut down their lobbies or offices and moved to telephonic assistance to promote social distancing. On March 20, 2020, the Office of Administrative Law Judges suspended all hearings and evidentiary deadlines through May 15, 2020 (2020-MIS-00006), which will worsen the case backlog. Given that the virus causing COVID-19 may remain "stable" on cardboard boxes for up to 24 hours²³ despite a low risk of transmission, and given that staff

are not available to receive mail at some government offices, the Benefits Review Board urged all petitions and briefs to be sent in electronically. Electronic uploading of large documents in some rural communities is difficult. According to a 2018 survey by the Federal Communications Commission, only 73% of rural Americans and 67% of Americans living on tribal lands have access to Internet download speeds of 25 Mbps or higher.²⁴

Conclusions

It is likely that the COVID-19 pandemic will adversely impact the clinical, educational, research, and legal/benefits needs of miners and/or professionals taking care of miners in the rural US, with significant setbacks in the fight against the resurgence of pneumoconiosis. Rahm Emanuel, former White House Chief of Staff once said, “You never let a serious crisis go to waste. And what I mean by that it’s an opportunity to do things you think you could not do before.” The COVID-19 pandemic should prompt us to expand the use of telemedicine, tele-education, telementoring, and telemonitoring in rural mining communities, as was presciently recommended by the 2019 US COPD National Action Plan prior to the pandemic.¹⁴

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